Financialization and firm-level investment in developing and emerging economies

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Abstract

This article analyses the effects of financialization on non-financial companies' (NFCs) investment and explores the interactions between financialization and the structural and institutional features of developing and emerging economies (DEEs). We estimate the effects of financialization on physical investment for a sample of DEEs using panel data based on the balance sheets of publicly listed NFCs. Our main contribution is to assess the interactions between the financialization of the NFCs and country-level financial development, financial reform, capital account openness, and global value chain participation. We find that the effects of the financialization of the NFCs in DEEs are highly context-specific. Stock market development, financial reforms for liberalization, capital account openness, and participation in the global value chains are associated with more pronounced negative effects of financialization on investment. Our analysis provides novel empirical evidence regarding the particular sources of variation in the financialization of corporations in DEEs.

Keywords: financialization, investment, firm data, development.

JEL classification: C23, D22, O16.

1. Introduction

The last decades have witnessed 'financialization' as a central phenomenon in the evolution of economies. Financialization has been summarized as an ongoing and self-reinforcing economic and social process that manifests itself in the growing prominence and influence of behaviors derived from the financial sector (Epstein, 2005). Van der Zwan (2014) highlights three main features of this process: a) a new regime of accumulation largely shaped around financial motives, b) the consolidation of the 'shareholder value' as the key principle in corporate governance, and c) rising influence of finance within everyday life (pension schemes, mortgages, healthcare, *etc*.). This article aims at analysing the impact of financialization on investment in the context of developing and emerging economies (DEEs) with a focus on the first two aspects.

Despite a growing theoretical literature on the effects of financialization on physical investment, the empirical analysis is mainly focused on developed countries. However, "the growing influence of financial markets and institutions, known as 'financialization', affects how wealth is produced and distributed" (UNCTAD, 2015:27) also in the context of DEEs. Demir (2007; 2009) analyses the negative impacts of financialization on investment taking into account financial liberalization for a set of emerging countries, whilst Seo et al. (2012) provide similar evidence about Korean non-financial corporations' (NFCs) R&D investments. Hecht (2014) presents a comparative analysis of the effects of financialisation on the NFCs in advanced and large developing economies, also testing competing heterodox theories on the effects of financialization on investment.

In the development literature, the effect of financialization on uneven international development has been highlighted (Becker et al., 2010; Bonizzi, 2013). Karwowski and Stockhammer (2016) compare macroeconomic aspects of financialization (e.g. financial deregulation, financial inflows, business, and household debt levels) in emerging economies,

and find a considerable degree of variability in the intensity of financialization, in line with the 'varieties of financialization' observed across the developed countries (Lapavitsas and Powell, 2013; Karwowski et al., 2019). Bonizzi, Kaltenbrunner, and Powell (2020) highlight the subordinate position of DEEs within the global hierarchy of financial and production relations, which shapes and consolidate different forms of financialization in DEEs, ultimately benefiting the top of the pyramid in which developed country multinationals can consolidate their dominant position.

This paper contributes to the literature on the financialization of the DEEs' NFCs by shedding light on the under-analysed specific forms of financialization in the emerging capitalist countries, considering the key aspects of financial liberalization and the hierarchical nature of international production relations. The aim is to provide an empirical substantiation to the claims of the variegated/subordinate financialization literature with a focus on the financialisation of the NFCs, in particular by analysing the relations between financial and productive subordination.

Our analysis builds on and integrates these two strands of literature in two aspects by providing i) micro-econometric evidence on the effects of financialization on investment using firm-level data for a fairly comprehensive sample of DEEs, and ii) a variegated analysis of the interaction of the structural and institutional features of the country and the process of financialization.

We confirm the negative effects of financialization on investment for a comprehensive sample of DEEs, and we identify the key dimensions along which this relationship differs across countries. Our results suggest a significant interaction between country-level structural and institutional features and firm-level financialization. Although at the aggregate level the negative effects of financialization on investment in DEEs are similar (although with some differences) to what has been found for developed countries, our disaggregated analyses point

to novel findings. We find that both higher degrees of financial liberalisation and stronger stock market development are associated with significant negative effects of financialization. Similarly, a higher degree of capital account openness is associated with stronger negative effects of financialization on the NFCs' investment. In addition, the investment of NFCs in countries that are relatively more integrated within the Global Value Chain (GVC) suffers more from an overall negative effect of firm-level financialization. Our results provide useful insights for policy debates regarding the role and capacity of the DEEs' governments to mitigate the effects of national and regional processes of financialization on investment.

The rest of the article is organized as follows. Section 2 reviews the literature on the financialization of investment with a focus on DEEs. Section 3 presents our econometric model. Section 4 introduces the data, key stylized facts, and the estimation methodology. Section 5 discusses the estimation results. Section 6 concludes.

2. Investment, financialisation, and development

The liberalisation and growth of financial markets are expected to facilitate the financing and efficient allocation of investment from a mainstream perspective (Beck *et al*., 2000; Beck and Levine, 2004; Levine, 2005; Love, 2003).

However, post-Keynesian research highlight the negative impacts of an expanding financial sector on income distribution and demand (Onaran *et al*., 2010; Hein, 2015), and in particular on investment, providing evidence that increasing engagement of the NFCs with financial markets in the developed countries has decreased their investment (Stockhammer, 2004; Orhangazi, 2008; Cordonnier and Van de Velde, 2015; Davis, 2018; Tori and Onaran, 2018, 2020, among others).

The financialization of the NFCs is a phenomenon that became evident also in the context of developing countries. In the last decades, there has been a general decline in investment as

a ratio to profits, and an increase in dividends as a ratio to profits, financial assets as a ratio to total assets, and debt ratios (UNCTAD, 2016). Regarding DEEs, Demir (2007, 2009) finds that financial liberalization in Argentina, Mexico, and Turkey channeled savings from the productive sector towards financial speculation, thus reducing the availability of funds for long-term physical investment and increasing returns on financial assets relative to fixed assets significantly reduced investment in these emerging market NFCs.

The literature suggests the effects of financialization depend on the specific institutional context. In this work, we consider various potential institutional factors mediating the effects of financialization on investment in the context of DEEs following Akkemik and Ozen (2014).

Even though the available evidence depict financialisation as a phenomenon common to both advanced and developing economies, the different institutional settings at the country and/or regional level reveal the presence of 'varieties of financialisation' (see Dore, 2008; Pike and Pollard, 2010; Lapavitsas and Powell, 2013). Moreover, some recent contributions put forward an interpretation of the financialization process at the global level showing that emerging economies are in a subordinate position with respect to advanced countries, with the latter dominating both the production and financial spheres (Bortz and Kaltenbrunner, 2019; Bonizzi *et al*., 2020).

In this paper, we analyse three channels of interaction between the macroeconomic institutional features of DEEs and the financialization of the NFCs. Our main interest is to explore the associations between country-level macroeconomic institutional features and firm-level investment behaviour in the context of financialization.

First, we test whether a more developed financial sector reinforces the impact of financialization on the investment in the context of DEEs. The mainstream literature argues that firms with higher financing obstacles experience slower growth, but this relationship is weaker in countries with relatively more developed financial systems, and financial

development is more effective in alleviating financing constraints, especially for smaller firms (Beck *et al*., 2005). However, while some studies find a significant and positive effect of financial development on economic growth and investment (Love, 2003; Hermes and Lensink, 2003; Levine, 2005), both the statistical significance and size of the estimates vary widely due to methodological heterogeneity (Valickova *et al*., 2015). Alternatively, Tori and Onaran (2020), focusing on European countries, find that the negative effect of financialization on NFCs' investment is stronger in countries with a relatively higher level of financial development. We assess whether higher levels of activities in the financial markets and intermediaries delinked from the financing requirements incentivize NFCs to engage heavily in non-operating activities, ultimately affecting their investment.

Second, we test whether the effects of financialization on NFCs' investment are related to the degree of openness of DEEs. Even though financial 'development' and 'liberalization' can be seen as two very interrelated phenomena (Chinn and Ito, 2008), the latter refers to the process of removal of barriers to the international movement of capital flows, while the former identifies changes in different dimensions of financial transactions (e.g. efficiency, depth, stability). Financial liberalization has a relatively more international feature than financial development. The evidence regarding the effect of financial liberalization on economic growth has been mixed (see Yanikkaya, 2003). While most of the mainstream contributions argue that capital account liberalization foster growth in developing countries (Levine, 2001; Hermes and Lensink, 2003; Wacziarg and Welch, 2008), post-Keynesians highlight the negative effects of international capital flows as the international dimension of financialization (Stockhammer, 2013; Tyson and McKinley, 2014). Increased access to international markets provides NFCs in DEEs with more financial investment opportunities, e.g. thanks to the ability to exploit interest rates differentials (Bruno and Shin, 2017). However, Demir (2009) shows this had a detrimental effect on NFCs' investment in Argentina, Mexico, and Turkey. Moreover, it has

been shown that large shares of capital inflows to DEEs are short-term and speculative (Bortz and Kaltenbrunner, 2019). A relatively more open macroeconomic environment can induce higher volatility, hence opportunities to profit from financial investment. Moreover, more cross-border capital flows can increase the competitive and financial pressures on the NFCs, hence pressure from shareholders. We explore whether a higher degree of openness to capital flows is associated with a stronger effect of financialization on investment.

Third, we test whether a higher degree of participation in Global Value Chains moderates the effects of financialization on NFCs' investment. This hypothesis relates to an important issue raised within the financialization literature with respect to the relationship between investment and offshoring. Milberg and Winkler (2009) show how the relocation of production outside the domestic boundaries has been one of the main causes of the slowdown in investment in the US. Recently, Auvray and Rabinovich (2019) provide additional empirical evidence for the US non-energy sectors showing how offshoring and financialization are intertwined phenomena. The decline in investment in companies based in developed countries is explained by the global nature of production, which is fostering the substitution of tangible capital with intangible capital by companies in developed countries. According to this view, the decline in investment in developed countries should be mirrored by an increase of NFCs' investment in the DEEs, i.e. a transfer of productive capacity. Do companies operating in the DEEs follow such a similar pattern within a financialized context? We try to shed light on the relationship between GVC participation in DEEs and NFCs' investment, to provide a fuller picture.

Table 1 summarizes the three hypotheses identified above, which we econometrically test in Section 5.

[Table 1]

While the first hypothesis aims at exploring variegation in financialization at the firm level, the second refers to degrees of financial subordination and vulnerability. The third hypothesis contextualizes financialization at the firm-level within productive subordination. We argue that these three hypotheses summarize the three key aspects (i.e. financial development, capital flows, and global productive integration) against which the DEEs' firm-level investment behaviour should be analysed.

3. The model

This section presents a model of investment building on the post-Keynesian theory of the firm and the alternative specifications which form the basis of our econometric analysis. According to the Post-Keynesian theory, capital accumulation is an intrinsically dynamic process (Kalecki, 1954; Lopez and Mott, 1999). Physical investment is an irreversible phenomenon. There is a path dependency connecting past and future levels of accumulation, as confirmed by the previous empirical literature (Ford and Poret 1991; Orhangazi 2008, Arestis *et al*., 2012). Therefore, in all the models to be estimated, we include the lagged investment. Also, all other explanatory variables are lagged to depict the adjustment processes.[i]

To analyze the potential effects of financialization, we use a basic model of investment building on Orhangazi (2008), which has been further amended by Tori and Onaran (2018; 2020)[ii]. Equation (1) presents the specification of 'financialized investment', where the rate of accumulation, *I/K*, is:

$$ln\left(\frac{I}{K}\right)_{it} = \beta_1 ln\left(\frac{I}{K}\right)_{it-1} + \beta_2 ln\left(\frac{S}{K}\right)_{it-1} + \beta_3 ln\left(\frac{\pi}{K}\right)_{it-1} + \beta_4 ln\left(\frac{F}{K}\right)_{it-1} + \beta_5 ln\left(\frac{\pi_F}{K}\right)_{it-1} + \beta_6 ln\left(\frac{TD}{TA}\right)_{it-1} + \beta_t + \varepsilon_{it} \quad (1)$$

where I is the addition to fixed assets, K is the net capital stock, S is net sales, π operating profit F is the sum of cash dividends and interest paid on debt, whilst π_F is the total non-operating (financial) income as the sum of interest and dividends received by the company, TD is total debt, and TA is total assets. i is the firm index, β_t identifies a set of time-dummies to control for unobservable time-specific effects common to all firms in the different estimations, whilst the standard disturbance term ε_{it} captures firm-specific fixed effects and idiosyncratic shocks. All variables are introduced in the first lag to reflect the time consideration in the investment plans. Firm-specific dummy variables are not considered since this specification is estimated in first differences. The operating income/fixed assets ratio is a measure of internal funds availability, the sales/fixed assets ratio is a proxy reflecting capacity utilization, financial payments/fixed assets and non-operating income/fixed assets are the two measures of the impact of financialisation.

Investment behavior is influenced by expectations about future profitability. However, in an environment characterized by 'uncertainty' (Kregel, 1976), companies use past performances (in terms of profitability and demand levels) to inform their current and future investment spending. For this reason, we expect a positive effect of the variables measuring demand (sales), internal funds (operating income), and the lagged level of investment on current investment.

The discussion is more complex for the expected signs of financial payments and profits, and total debt. The composite measure for outward financialisation, *F,* which is the sum of interest and dividend payments (as a ratio to *K*)*,* captures a) the liquidity effect of interest payments, and b) the effect of the SVO[iii]. Unfortunately, the Worldscope database does not provide a sufficient number of observations about another central phenomenon within the financialization of NFCs, namely 'share buybacks' (see Krippner, 2005). Although this is a limitation of our analysis, it is worth noting that the practice of share buybacks (or share repurchases) remained a legal peculiarity of the USA market and developed in the European context only relatively recently, and there is still little evidence about the importance of this practice in DEEs.

According to the Post-Keynesian theory (and empirical evidence provided among others by Orhangazi, 2008; Tori and Onaran, 2020), financial payments are likely to harm investment since they represent both a reduction in internal funds and prominence of short-term focuses on firms' management. Furthermore, not only do NFCs use part of their funds to pay interest and dividends to the financial sector, but they can also more than before pursuing non-operating financial investment themselves, thus receiving financial income. We include the sum of interests and dividends received by the NFCs (πF) as a ratio to K as a variable to capture this aspect of financialization[iv]. Theoretically, the expected sign of the effect of financial income on investment is ambiguous. On the one hand, these incomes may have a positive impact on the accumulation of fixed assets by easing the liquidity constraint faced by firms. On the other hand, financial activities can also be detrimental to physical investment, since the NFCs could be attracted by short-term, reversible financial investment, instead of engaging in long-term, irreversible physical investment. A counterargument might be that if the shift in investment spending from real to financial assets is only in the short-run, this can add to the firm's funds in the long-run, and hence could potentially have a positive long-run impact on investment. If the firms are investing in financial assets when real investments are less profitable, earnings from financial investments could be used to fund real investment in the long-run. The expectation of a negative coefficient for the financial profit variable developed above is potentially contentious. For one thing, this expectation is in contrast with the financing constraint hypothesis, according to which any income, whether from financial or real sources, would contribute to the internal funds of the firm, and hence its effect on investment should be positive. If in the future, the profit rate on financial assets falls below the profit rate on real assets, firms may use their income from current financial operations to finance their future real investment projects. In this case, past financial income can be positively correlated with the level of current capital expenditures. Second, even though financial income could be treated like any other income, there is no guarantee that it would be used to finance real investment.

Financial income might be recycled back to financial markets or stockpiled as cash. The available evidence also suggests the impact of financial income is non-linear to company size (Davis, 2018; Tori and Onaran, 2020). On the one hand, relatively small companies may use this additional source of income to partially ease liquidity constraints. On the other hand, larger and more flexible companies may see short-term and reversible financial investment as an attractive alternative to physical investment.[v]

We explore this possible dual, non-linear effect, by including an interaction dummy variable to account for the potentially different effects of financial income with respect to the size of the company (in terms of total assets). This alternative specification is described in Equation (2)

$$ln\left(\frac{I}{K}\right)_{it} = \beta_1 ln\left(\frac{I}{K}\right)_{it-1} + \beta_2 ln\left(\frac{S}{K}\right)_{it-1} + \beta_3 ln\left(\frac{\pi}{K}\right)_{it-1} + \beta_4 ln\left(\frac{F}{K}\right)_{it-1} + \beta_5 ln\left(\frac{\pi_F}{K}\right)_{it-1} + \beta_{5.1} ln\left(\frac{\pi_F}{K}\right)_{it-1} * D_n + \beta_6 ln\left(\frac{TD}{TA}\right)_{it-1} + \beta_t + \varepsilon_{it} \qquad (2)$$

where the dummy variable D_n takes the value 1 if the average total assets of a company *i* lie in the lower *n* percentile of the distribution and take the value 0 otherwise. The place of a firm within size distribution is country-specific, as size cohorts are not equally represented among the countries in the sample. The estimated coefficient β_5 shows the relative effect for the companies at the top of the distribution. The elasticity for the remaining companies is the sum of the coefficients β_5 and $\beta_{5.1}$. A test for the joint statistical significance of the new variable is performed using a Wald test.

This second specification is used to capture the interactions between financialization and the institutional structure of the DEEs discussed in Section 2. The model will be estimated using two sub-samples identified according to the median of the specific country-level indicator. The first panel will comprise NFCs operating in countries with an average of the

indicator below the median, whilst the second panel will feature NFCs from countries above the median. The country-specific variables are discussed in more detail in Section 4.

We use this comprehensive but parsimonious model to test our hypotheses in the context of different institutional settings, based on the associations between variables reflecting the effects of financialization and the country-specific variables.

4. Data, stylized facts, and estimation methodology

We extract our data from the Worldscope database of publicly listed firms' balance sheets, which contains standardized accounting information about not only investment, sales, profits, interest, and dividend payments but also financial incomes. Standardized data on financial payments and, in particular, financial incomes are difficult to find; our database allows us to have comprehensive variables for our estimations. The Worldscope database has been acknowledged as a valuable source in the literature on firm-level investment analysis (e.g. Love, 2003; Love and Zicchino, 2006).

The selection of the sample has been informed by data availability, in particular for the financialization variables. Using the Worldscope Database Guide, we identify the countries in the 'advanced emerging, emerging, and frontier markets' category, excluding eastern European countries. We extract data for all active, publicly listed companies. First, we follow Love and Zicchino (2006) and include all countries with at least 30 firms and 100 firm-year observations between 1995 and 2015. Financial firms, identified by the primary SIC codes 6000- 6799, are excluded[vi]. This results in an initial sample of 25 countries (Argentina, Bangladesh, Brazil, Chile, China, Colombia, Egypt, India, Indonesia, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Peru, Philippines, Russian Federation, Saudi Arabia, Singapore, South Africa, South Korea, Sri Lanka, Thailand, Turkey, and Vietnam)[vii].

Next, we check for outliers and errors that usually characterise firm-level data. We exclude observations where fixed capital, capital expenditure, sales, and total assets are negative or equal to zero. Also, companies with a negative mean operating income for the whole period are excluded.[viii] To avoid including episodes of mergers or acquisitions, companies with a rate of accumulation (I/K) higher than 2.5 or an increase in sales higher than 200 percent are excluded as recommended by Love (2003) and Bloom *et al*. (2004). We followed the standard procedure is to exclude observations (not the company) in the upper and lower 1% of each variable's distribution. Finally, it is recommended that firms should have at least five consecutive observations for the dependent variable (I/K), a condition also required for econometric purposes when employing a dynamic estimator (Roodman, 2009).

The result of this cleaning procedure is a sample of 3,720 NFCs from 21 DEEs (Argentina, Brazil, Chile, China, Colombia, Egypt, India, Indonesia, Malaysia, Mexico, Nigeria, Pakistan, Peru, Philippines, Russian Federation, Singapore, South Africa, South Korea, Sri Lanka, Thailand, Turkey). Table 2A in the Appendix shows the list of countries in our sample with the number of observations and firms by country, while Table 3A provides the descriptive statistics for the sample. As expected, the number of observations and firms included in the sample varies widely across the countries. The two countries with the largest number of observations in the sample are India and South Korea, whilst the ones with the lowest number are Nigeria and Colombia. Overall, our sample provides a comprehensive picture of the major DEEs.[ix]

As can be seen in Figure 1 physical investment as a ratio to operating income, i.e. the re-investment of operating income by the NFCs, has decreased by 25% on average from 1995 to 2015 (15% by 2008 compared to its peak in 1997). At the same time, the ratio of financial assets to fixed assets increased significantly, reaching 2.2 in 2015 (an increase of about 260%).
[Figure 1]

Figure 2 shows that, on average, the rate of capital accumulation (I/K) of NFCs in DEEs experienced a decrease during 1995-1999, recovered in the run-up to the 2008-crisis, and decreased again after the crisis. At the same time, both financial payments (dividends plus interest as a ratio to fixed assets) and financial incomes have been increasing significantly. The 2007–2008 crisis has led to a slight reversal in the NFCs' financial payments and incomes, although the increasing trends re-emerged thereafter.[x]

[Figure 2]

Table 4A in the Appendix provides the data description and sources for country-level variables. All these variables are constructed by calculating the average value from 1995 to 2007, to avoid taking into consideration the years of the financial crisis.[xi]

The *de facto* index of financial development is the average of the stock market and financial intermediaries' development in the country, including domestic credit to the private sector, stock market capitalization, stock market total value traded, and the stock market turnover ratio (all as a percent to GDP). This is a widely used index in the literature on the effect of financial development on growth or investment (e.g. see Love, 2003). The financial reform index (Abiad *et al*., 2010) is a *de jure* index normalized between 0 to 1 aiming at summarizing indicators regarding legislation about controls on credit, interest rates, pro-competition measures, banking supervision, privatization, international capital flows, and the security markets.

The ratio of total financial liabilities to GDP is used as a proxy for the level of openness to foreign investors and captures the *de facto* capital account openness. Data are from the Lane and Milesi-Ferretti, G.M. (2007) database. This measure includes all foreign liabilities in the

form of portfolio and FDI investments. The widely used Chinn-Ito index (KaOpen) is employed to measure *de jure* capital account openness.

To capture the internationalization of production we use the GVC Participation Index provided by the UNCTAD-Eora Global Value Chain Database. This index is better suited to capture the multifaceted aspects of the integration of DEEs into GVC compared to the simple offshoring measures (Milberg, 2008; Aslam *et al*., 2017). The index is equal to the sum of the share of foreign value-added in the country *i*'s exports and the share of country *i*'s value-added in foreign countries' exports (indirect value-added), divided by the total value-added of exports.

Table 2 summarizes the country-level variables.

[Table 2]

Although the rankings of the different indicators show some overlaps, the median splits based on different country-specific dimensions produce a rich and diverse categorization.[xii] The various clusters constitute the sub-panels for the estimations.

4.1. Estimation methodology

In dynamic panel data models, the unobserved panel-level effects are correlated with the lagged dependent variables, and standard estimators (e.g. Ordinary or Generalized Least Squares) are inconsistent. Therefore, we estimate our model using a difference-GMM estimator (Arellano and Bond, 1991). This methodology is suitable for analyses based on a 'small-time/large observations' sample. GMM is a powerful estimator for analyses based on firm-level data mainly for three reasons (Roodman, 2009). First, GMM is one of the best techniques to control for all sources of endogeneity between the dependent and explanatory variables, by using

internal instruments, namely the lagged levels of the explanatory variables, which allows us to address dual causality if rising financial payments and incomes are also consequences of the slowdown in accumulation. The instrument set consists of instruments not correlated with the first difference of the error term but correlated with the dependent variable. Second, by first-differencing, this estimator eliminates companies' unobservable fixed effects. Third, GMM can efficiently address autocorrelation problems. We apply two tests to assess the appropriateness of the instrument sets and lag structures. First, we check for second-order serial correlation with the Arellano-Bond test (Arellano and Bond, 1991). Second, we verify the validity of the instruments through the Hansen test.[xiii] In all models, both the lagged dependent variable and all the explanatory variables enter the instrument set as endogenous regressors. Consistent with the structure of the GMM estimator, all the variables in the different specifications are instrumented using the second and third lags of the specific variables, while the year-dummies are included in the exogenous set of instruments. We test the joint significance of the time dummies, and the significance of the interaction dummies on financial income using a Wald test.

All the variables are in logarithmic form. We employ a log-log specification for five reasons: i) to allow for non-linear relationships between the dependent and the explanatory variables; ii) to control for heteroscedasticity; iii) to allow for more meaningful interpretation of effects as elasticities (in percentage changes); iv) to allow for direct comparison with previous micro-level studies about financialization and in particular with Orhangazi (2008) and Tori and Onaran (2018; 2020); v) this form has proven to be more robust (in terms of auto-correlation and Hansen tests) when testing microeconomic relationship along with macroeconomic (institutional) variables (see e.g. Tori and Onaran, 2020). Robust standard errors are calculated through a two-step procedure, after a finite-sample correction (Windmeijer, 2005).

The country groupings are defined by computing the average of each indicator during the pre-crisis period 1995-2007, and by applying a median split between countries. All the estimations for the country groups come from weighted regressions, with the weights equal to 1 divided by the number of available observations in that country. This procedure mitigates the bias due to the high number of observations in some countries and allows considering country-specific time-invariant characteristics in a dynamic estimation (see Love, 2003).

5. Estimation results

This section presents the estimation results for alternative specifications of the investment model presented in Section 3. Table 3 presents the estimation results for the baseline model in equation (1) and equation (2) for the sample period of 1995-2015. The estimation results for specification (I) show both lagged accumulation and sales (i.e. demand) having a positive and highly significant effect on NFCs' rate of accumulation. Also, operating profit has a positive effect on investment, although both its magnitude and significance level are relatively lower than the two previous variables. These results are in line with the evidence for NFCs in developed countries. In particular, the effect of profitability on capital accumulation is weak, and this could be directly due to the interaction between profits and the two financialization channels described in Section 2.

[Table 3]

The average effect of financial payments (interest plus dividends) is negative and significant, while financial income is insignificant. Also, the ratio of debt to total assets has a significantly negative effect on capital accumulation, indicating that debt has constrained investment in the DEEs.

Columns II to IV of Table 3 show the estimation results for equation (2), in which the effect of financial income interacts with the firm sizes measured by total assets. In specification II, the dummy variable D_n is equal to 1 for companies in the bottom 10% in terms of size distribution, while in specification VI D_n=1 for companies in the bottom 90% in terms of size distribution. The other thresholds in terms of size are the first, second, and third quartiles (i.e., 25, 50, and 75 percent). An interesting finding is that larger NFCs from the top 50% to the top 10% experienced a positive effect of financial income on investment (columns IV to VI). The elasticity for financial income across these percentiles is equal to +0.43 on average for the relatively larger companies, while for the smaller firms this is between -0.16 and -0.77.[xiv] This result stands in stark contrast to the ones so far proposed by the literature on developed economies (e.g. see Orhangazi, 2008; Tori and Onaran, 2018; 2020), where cash-constrained smaller companies experience generally positive effects of financial incomes on their investment. This result can be explained from a 'catching-up' perspective, where larger companies in DEEs aim at improving their productive basis to compete with competitors operating in developed countries, also utilizing income from financial investments, whereas smaller companies seem to favor (reversible) financial investment over (irreversible) fixed capital expenditures.[xv] The effects of both financial payments and debt on investment are consistently negative and significant in all estimations.

Next, we present the results for the tests of the three hypotheses presented in section 2 regarding the effect of country-specific features on the effects of financialization at the firm-level. The sub-panel including NFCs in countries with indicators below the median is named 'panel 0', whilst 'panel 1' is used to indicate NFCs in countries above the median.

The first set of estimations tests the variation in the effects of financialization on NFCs with respect to the financial development and reform of the country, testing hypothesis 1.

Tables 4 and 5 present the estimation results based on the median split based on the composite index of financial development and the financial reform index respectively.

The results in Table 4 show that the split in terms of financial development is inconclusive, in particular given the low Hansen's test for estimation in panel 1. A lower level of financial development is associated with a positive effect of financial incomes for larger companies, and a negative effect for smaller ones (see columns IV, V, and VI). The inability of the financial development index in explaining countries' differences might be due to diverging effects from its two sub-components. Financial development is, in fact, the combination of two indices: INDEX 1 summarizes the development of financial intermediaries, while INDEX2 measures the development and efficiency of the stock market. Thus, we provide disaggregated estimations for these two indices in Table 4.1 and 4.2. The estimations based on the split based on INDEX1 still suffer from the poor instrument sets. On the contrary, estimations based on INDEX2 provide useful insights. Results in column VII of Table 4.2 show that the aggregate effect of both financial payments and incomes is significant and negative for NFCs in countries with a relatively higher development of their stock markets. In countries with lower levels of stock market development, the investments of larger NFCs in the top 50% benefited from financial incomes (0.23), whilst the effect has been slightly negative for the rest of the companies (-0.015).

[Table 4]

[Table 4.1]

[Table 4.2]

The clustering of companies based on the median levels of the financial reform index provides a clearer picture. Table 5 shows that, in aggregate, higher levels of financial reform index are associated with the negative effects of both financial payments and incomes on

investment (Column VII). In particular, the effect of financial incomes is negative albeit insignificant for companies in the top percentiles. Legislations that favored the liberalizations of financial markets seem to be associated with stronger negative effects of financial incomes for all NFCs. NFCs in countries where financial liberalization reforms have been relatively modest in this period (e.g. Colombia, India, and Pakistan) experience a positive effect of financial incomes for larger companies (from 0.16 to 0.22) and a negative effect for the ones below the second and third quartiles (Columns IV and V). The ratio of total debt to total assets has a negative and significant effect only for NFCs in panel 0.

Taken together, the results for the financial development and reform indices provide support for hypothesis 2. Higher levels of stock market development and liberalization of the financial sector in DEEs are associated with clearer negative effects of financialization on NFCs' investment.

[Table 5]

The second institutional dimension within which the financialization of the NFCs in DEEs is analysed relates to the variation with respect to the degrees of openness to foreign investment, testing hypothesis 2. The results in Table 6 show that there has been an aggregate negative effect of both financial payments and incomes in NFCs operating in countries with a relatively higher value of financial liabilities as a ratio to GDP (columns VII, VIII, and IX). A slightly positive effect (0.14) of financial incomes is detected for companies in the top 50% of the distribution (column X). In countries where financial liabilities/GDP is relatively lower, the effect of financial payments is insignificant. Financial incomes have a positive effect on the investment of companies above the second and third quartiles of the size distribution and a negative effect for smaller companies (columns IV and V). NFCs in panel 0 experience an overall negative and highly significant effect of debt on investment. Interestingly, the results

for the split based on financial liabilities resemble those for the split based on the financial reform index (see Table 5).

[Table 6]

The estimations based on capital account openness confirm these findings. Using a *de jure* indicator of capital account openness, the aggregate effects of financial payments and incomes are negative and significant in panel 1 (Table 7, column VII). Both larger NFCs operating in countries with less and more open capital accounts experience a positive effect of financial incomes on investment. However, with lower capital account openness, this positive effect is particularly strong for NFCs in the top 10% of the size distribution (Column VI) whilst it is slightly negative for the ones in the bottom 50% (-0.12, Column IV); for higher levels of capital account openness the positive effect is particularly strong for NFCs in the top 25% of the size distribution whilst it is significantly negative for the ones in the bottom 75% (-0.20, Column XI). Also, the effect of financial payments is insignificant when the capital account is relatively less open, while a higher level of openness is also associated with a higher significance of the negative effect of debt. These results support our third hypothesis that countries with a higher degree of capital account openness (e.g. Argentina, Chile, Indonesia, and Thailand) experience a stronger negative effect of financial incomes on NFCs' investment.

[Table 7]

The third and last analysis concerns the variation with respect to the degree of participation in the GVC of the country, testing hypothesis 3. Our results in Table 8 show that NFCs in countries where the GVC index is higher experience negative effects of both financial

payments and incomes (columns VII and VIII). In this sub-panel, the effect of financial incomes for larger companies is overall insignificant. The investment of NFCs operating in countries relatively less integrated into the GVC did not suffer from financial payments, and financial incomes benefited, in particular, the investment of NFCs in the top 25% of the size distribution (column V). Financial incomes negatively affect NFCs in the bottom 75% (-0.09). Interestingly, profitability is a significant determinant of investment only for the NFCs in panel 1. At the same time, in panel 0 the magnitude of the effect of sales is relatively higher than in panel 1, indicating that the investment of the NFCs in a country with lower internationalization of production seems to be more demand constrained. Our third hypothesis is not confirmed. On the one hand, an overall stronger effect of financial payments is identified in panel 1. These results could lend themselves to an interpretation that is consistent with the notion of subordinate financialization. The NFCs in the DEEs (with the partial exception of Singapore) occupy a subordinate position in GVC. As a result, participation in GVC would increase the susceptibility of investment to cash payments, as these would likely mean payments upstream to lead firms, generating an effect similar to the pressures from shareholders. On the other hand, financial incomes have a negative effect on the investment of the bottom 75% in both panels, with a strong positive effect for larger companies in panel 0, and an insignificant effect for larger companies in panel 1. In addition, larger companies in less integrated countries are using financial incomes to sustain the development of their productive capacity. Our analysis suggests a complex relationship between productive sectors in developed and developing countries, which seems to support the arguments of the subordinate financialization literature.

[Table 8]

The last part of this section provides further discussion about the economic significance of our estimates. Following a standard methodology, we compute the long-run elasticities by dividing each short-run elasticity by one minus the coefficient of the lagged dependent variable. Multiplying the long-run elasticity by the actual cumulative change in each variable during the estimation period, we calculate the corresponding economic effect. We compute the economic effects based on elasticities estimated for the period 1995-2015. Table 9 presents the long-run elasticities and economic effects for sub-samples, focusing on the effects of financial incomes, financial payments, and debt.

[Table 9]

Given that the effects of financialization variables are insignificant in panel 0, the only meaningful computation of economic effect can be done for estimations in panel 1.[xvi] Overall, financial payments have greater economic significance during this period. Leaving aside the results from high INDEX1 since they suffer from overidentifying restrictions, the negative economic effect of financial payments has been particularly strong for companies in countries with a higher degree of financial liberalization (-0.375), higher financial liabilities as a ratio to GDP (-0.282), and a higher stock market development (-0.234). The effect is negative but lower in the cases with higher participation to GVC (-0.223) and higher capital account openness (-0.182). Companies operating in countries with a relatively higher ratio of financial liabilities to GDP experience the largest economic effect of financial incomes (-0.115). The magnitude of the negative economic significance of financial incomes is similar for companies in the context of stronger financial reform, participation in GVC, and capital account openness (0.101, -0.085, -0.084 respectively). Debt shows considerable effects too, which are particularly strong for companies in countries with lower financial reform (-0.267), a lower ratio of financial liabilities to GDP (-0.204), and low participation in GVC (-0.198).

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Although only partial, the analysis of the economic effects corroborates our discussion about the statistical significance of the effects of financialization on investment in DEEs, also when macroeconomic and institutional differences are considered.

6. Conclusion

The analysis of the forms and intensity of financialization in DEEs is a relatively new research area. This article contributes to this literature by analysing the effects of financialization on NFCs' investment and how this is mediated by the structural and institutional features of the DEEs in both the 'real' and 'financial' spheres of the economy. In particular, we offer an analysis of the interaction between financialization at the firm-level and country-specific variables for a comprehensive sample of DEEs.

Overall, our findings corroborate the view of a 'variegated' approach to financialisation (Karwowski *et al*., 2019). Not only does financialisation manifests itself in different forms according to different sectors of the economy (companies, household, financial sector) but its effects are variegated in different countries due to specific structural features, in line with what found in previous contributions (see among others Akkemik and Özen, 2014 and Demir, 2007; 2009).

In this respect, our results show that there is a significant association between country-level structural and institutional features and firm-level financialization. At the aggregate level, on average we confirm the findings of firm-level studies about developed countries (e.g. see Orhangazi, 2008; Davis, 2018; Tori and Onaran, 2020) about the negative effects of financial incomes, financial payments, and debt levels on NFCs investments, also in the case of DEEs. However, our disaggregated analyses bring in elements of novelty compared to the literature.

First, our results suggest that, in DEEs, smaller companies experience a negative (crowding-out) effect of financial incomes on investment, while larger companies use financial

incomes to support investment. This result is in contrast to the findings for the developed countries, where less cash-constrained large companies substitute physical investment for financial activities.

Second, we present a detailed econometric test regarding how the effects of financialization on investment vary with respect to the country-level features. Higher degrees of financial reform towards liberalization appear to be associated with the negative effects of financial payments and incomes for all NFCs in DEEs. Similarly, higher degrees of capital account openness are associated with stronger negative effects of financialization on NFCs' investment. Finally, in countries with higher GVC participation, NFCs' investment suffers from an overall negative effect of financial payments and incomes. Contrary to what is suggested by the estimations for the full sample, in countries with higher GVC participation the investment of larger companies did not benefit from financial incomes, as opposed to larger companies in less integrated contexts.

On the one hand, financial development and liberalisation increase the shareholder pressure on companies and introduces incentives towards financial investment. On the other hand, companies in countries relatively more integrated into the global value chains seem to suffer more from both shareholder and financing pressures.

These results imply that, given the core role played by the corporate sector in development, DEEs could benefit from policies aimed at discouraging particularly smaller companies from engaging in financial investment while providing adequate finance through, for example, national development banks. Stricter regulation of both financial markets and the capital account could encourage investment. The competitive pressure posed by the GVC does not seem to direct NFCs' behavior towards the long-term accumulation of physical assets and expansion of their productive basis. On the contrary, the wider involvement of NFCs in the

GVC is associated with a negative impact of financialization, consistent with the notion of subordinate financialization.

It has to be noted that, in general, countries with a relatively weaker investment, hence productive capacity, are more exposed to external shocks, which can jeopardize their economic growth trajectories. Our results could provide useful insights for a renewed 'developmental state agenda' (Wade, 2018), aimed at mitigating and possibly eliminating the effects of the discipline imposed by financial markets and institutions on the DEEs' productive sectors.

A fundamental implication of our results is that the financialization of investment, especially in the case of DEEs, has to be analysed through institutional and structuralist lenses. Notwithstanding this, our results cannot be conclusive and do not allow for generalization, given the specific sample and measures employed. Further research is needed to understand better each country's peculiarities and to disentangle the complex interactions between macro-structure and firm-level behavior in DEEs, which carry aspects of both variegation and subordination.

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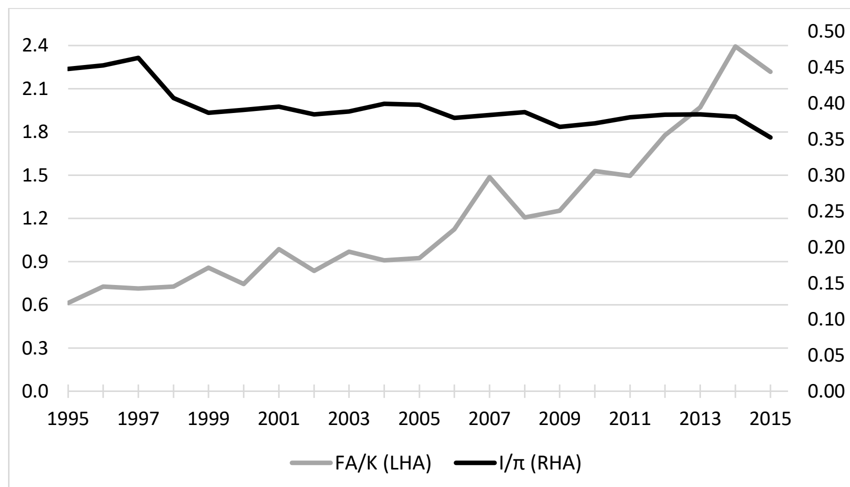
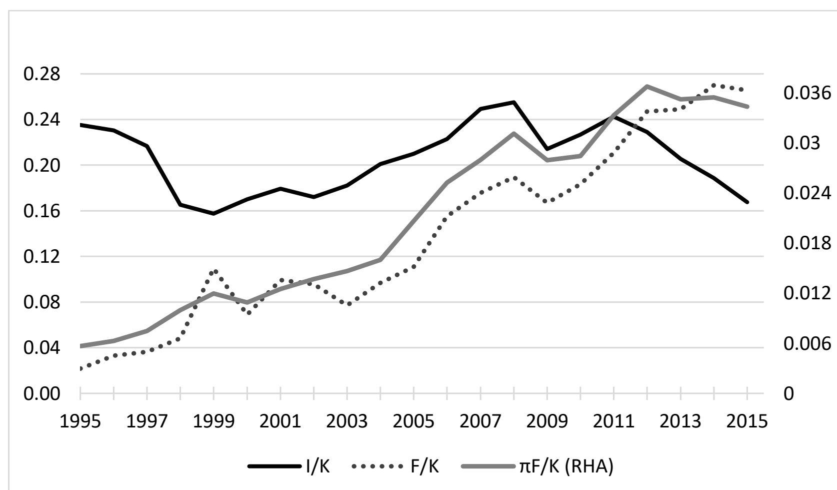
Figure 1. Additions to fixed assets/operating income (I/π) and financial assets/fixed assets (FA/K), full sample, 1995-2015



Source: authors' elaboration based on Worldscope data

Figure 2. Rate of accumulation (I/K), financial payments/fixed assets (F/K), and financial incomes/fixed assets (π_F /K), full sample, 1995-2015



Source: authors' elaboration based on Worldscope data

Table 1. Hypotheses

H_1	*The more developed and liberalized the financial sector of a DEE, the stronger the negative effects of financialization on NFCs' investment*
H_2	*The higher the degree of openness to capital flows of a DEE, the stronger the negative effects of financialization on NFCs' investment*
H_3	*The higher the degree of participation of a DEE to global value chains, the weaker the negative effects of financialization on NFCs' investment*

Table 2. Country-specific variables, average 1995-2008.[xvii]

Country	Financial development index	Financial reform index	Financial liabilities to GDP	Capital account openness index (Chinn-Ito)	Global Value Chain Participation Index
Argentina	-0.662	0.749	0.915	0.413	0.359
Brazil	-0.242	0.515	0.546	-0.768	0.405
Chile	-0.040	0.835	0.975	0.485	0.488
Colombia	1.271	0.334	0.513	-1.195	0.390
China	-0.684	0.680	0.353	-0.922	0.332
Egypt, Arab Rep.	0.082	0.675	0.623	1.574	0.443
India	0.120	0.506	0.346	-1.195	0.399
Indonesia	-0.330	0.606	0.879	1.326	0.463
Korea, Rep.	1.032	0.719	0.520	-0.458	0.520
Malaysia	1.521	0.714	1.037	0.168	0.643
Mexico	-0.645	0.866	0.574	0.919	0.420
Nigeria	-0.842	0.729	0.981	-0.999	0.408
Pakistan	0.376	0.511	0.504	-1.249	0.316
Peru	-0.645	0.896	0.723	2.233	0.453
Philippines	-0.201	0.760	0.810	0.100	0.644
Russian Federation	-0.564	0.744	0.692	-0.544	0.574
Singapore	1.609	0.900	6.228	2.211	0.782
South Africa	0.955	0.847	0.676	-1.113	0.531
Sri Lanka	-0.582	0.629	0.663	0.100	0.380
Thailand	1.009	0.643	0.891	-0.212	0.514
Turkey	-0.096	0.703	0.552	-1.113	0.505
median	-0.096	0.714	0.676	-0.212	0.453
average	0.116	0.693	0.952	-0.011	0.475
min	-0.842	0.334	0.346	-1.249	0.316
max	1.609	0.900	6.228	2.233	0.782

Table 3. Estimation results, full sample, dependent variable $(I/K)_t$

	(I) TOT	(II) TA10	(III) TA25	(IV) TA50	(V) TA75	(VI) TA90
$(I/K)_{t-1}$	0.374***	0.372***	0.375***	0.378***	0.374***	0.369***
	(0.025)	(0.025)	(0.024)	(0.024)	(0.026)	(0.025
$(S/K)_{t-1}$	0.379***	0.375***	0.364***	0.344***	0.345***	0.365***
	(0.051)	(0.053)	(0.053)	(0.054)	(0.051)	(0.049)
$(\pi/K)_{t-1}$	0.022*	0.023*	0.024*	0.028**	0.027**	0.026**
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
$(F/K)_{t-1}$	-0.068**	-0.070**	-0.072***	-0.084***	-0.068***	-0.071***
	(0.028)	(0.028)	(0.028)	(0.027)	(0.026)	(0.025)
$(\pi_F/K)_{t-1}$	-0.024	-0.019	0.012	0.187***	0.346***	0.750**
	(0.022)	(0.024)	(0.035)	(0.058)	(0.120)	(0.352)
$(\pi_F/K)_{t-1} * D_n$		-0.029	-0.109	-0.350***	-0.455***	-0.827**
		(0.167)	(0.085)	(0.092)	(0.144)	(0.375)
$(TD/TA)_{t-1}$	-0.058***	-0.058***	-0.061***	-0.062***	-0.061***	-0.057***
	(0.017)	(0.016)	(0.017)	(0.015)	(0.014)	(0.017)
Number of observations	27885	27885	27885	27885	27885	27885
Number of firms	3720	3720	3720	3720	3720	3720
Average number of observations	7.5	7.5	7.5	7.5	7.5	7.5
Number of instruments	31	33	33	33	33	33
p-value Hanses test	0.199	0.265	0.301	0.233	0.206	0.323
p-value A-B test (AR1)	0.000	0.000	0.000	0.000	0.000	0.000
p-value A-B test (AR2)	0.423	0.419	0.479	0.813	0.772	0.803
Time effects	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
p-value Wald test for time effects	0.008	0.002	0.001	0.000	0.005	0.002
p-value $(\pi_F/K) + (\pi_F/K)_{t-1} * D_n$		0.210	0.130	0.001	0.002	0.019

Weighted regressions (w=1/total country obs.), two-step difference-GMM estimations. Specification I based on Equation (1), specifications II-VI based on equation (2). Coefficients for the year dummies are not reported. Robust corrected standard error in parenthesis. * significant at 10%, ** significant at 5%, *** significant at 1

Table 4. Estimation results, full sample, 1995-2015, financial development index median split, dependent variable $(I/K)_t$

Weighted regressions (w=1/total country obs.), two-step difference-GMM estimations. Specifications I and VII based on Equation (1), specifications II-VI and VIII to XII

	Financial development index below the median						*Financial development index above the median*					
	(I) TOT	(II) TA10	(III) TA25	(IV) TA50	(V) TA75	(VI) TA90	(VII) TOT	(VIII) TA10	(IX) TA25	(X) TA50	(XI) TA75	(XII) TA90
$(I/K)_{t-1}$	0.295***	0.283***	0.294***	0.310***	0.307***	0.301***	0.440***	0.432***	0.437***	0.443***	0.430***	0.420***
	(0.042)	(0.041)	(0.039)	(0.040)	(0.042)	(0.041)	(0.028)	(0.029)	(0.029)	(0.029)	(0.034)	(0.040)
$(S/K)_{t-1}$	0.282***	0.291***	0.244***	0.229**	0.281***	0.268***	0.411***	0.421***	0.427***	0.404***	0.378***	0.396***
	(0.084)	(0.085)	(0.089)	(0.091)	(0.082)	(0.080)	(0.053)	(0.053)	(0.055)	(0.056)	(0.058)	(0.065)
$(\pi/K)_{t-1}$	0.021	0.024	0.025	0.026	0.020	0.023	0.021	0.018	0.021	0.020	0.023	0.029
	(0.022)	(0.022)	(0.021)	(0.021)	(0.021)	(0.022)	(0.016)	(0.016)	(0.016)	(0.016)	(0.015)	(0.019)
$(F/K)_{t-1}$	-0.069	-0.078	-0.078	-0.094**	-0.067	-0.069*	-0.067***	-0.061**	-0.069***	-0.068***	-0.068***	-0.073**
	(0.047)	(0.049)	(0.049)	(0.048)	(0.044)	(0.042)	(0.025)	(0.027)	(0.026)	(0.025)	(0.026)	(0.032)
$(\pi_F/K)_{t-1}$	-0.034	-0.023	0.034	0.219**	0.350**	0.645**	-0.005	-0.024	-0.026	0.085	0.328***	1.262
	(0.035)	(0.042)	(0.052)	(0.086)	(0.160)	(0.277)	(0.022)	(0.030)	(0.049)	(0.059)	(0.124)	(0.907)
$(\pi_F/K)_{t-1} * D_n$		-0.022	-0.184*	-0.398***	-0.467**	-0.724**		0.765	0.108	-0.188	-0.437***	-1.373
		(0.089)	(0.105)	(0.124)	(0.190)	(0.295)		(0.740)	(0.224)	(0.122)	(0.161)	(0.975)
$(TD/TA)_{t-1}$	-0.027	-0.030	-0.032	-0.035	-0.043*	-0.028	-0.070***	-0.067***	-0.068***	-0.074***	-0.065***	-0.066***
	(0.029)	(0.029)	(0.030)	(0.027)	(0.026)	(0.030)	(0.014)	(0.014)	(0.014)	(0.014)	(0.013)	(0.014)
Number of observations	6436	6436	6436	6436	6436	6436	21449	21449	21449	21449	21449	21449
Number of firms	767	767	767	767	767	767	2953	2953	2953	2953	2953	2953
Average number of observations	8.4	8.4	8.4	8.4	8.4	8.4	7.3	7.3	7.3	7.3	7.3	7.3
Number of instruments	31	33	33	33	33	33	31	33	33	33	33	33
p-value Hanses test	0.514	0.531	0.618	0.476	0.545	0.638	0.044	0.123	0.036	0.019	0.112	0.222
p-value A-B test (AR1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
p-value A-B test (AR2)	0.838	0.837	0.918	0.729	0.744	0.855	0.426	0.682	0.502	0.421	0.485	0.918
Time effects	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Wald test for time effects (p-value)	0.002	0.001	0.000	0.005	0.001	0.000	0.010	0.008	0.009	0.012	0.004	0.003
p-value $(\pi_F/K) + (\pi_F/K)_{t-1} * D_n$		0.514	0.058	0.005	0.022	0.057		0.304	0.650		0.026	0.144

based on equation (2). Coefficients for the year dummies are not reported. Robust corrected standard error in parenthesis. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table 4.1. Estimation results, full sample, 1995-2015, INDEX1 index median split, dependent variable $(I/K)_t$

	INDEX1 below the median						*INDEX1 above the median*					
	(I) TOT	(II) TA10	(III) TA25	(IV) TA50	(V) TA75	(VI) TA90	(VII) TOT	(VIII) TA10	(IX) TA25	(X) TA50	(XI) TA75	(XII) TA90
$(I/K)_{t-1}$	0.332***	0.324***	0.330***	0. 336***	0.346***	0.329***	0.403***	0.402***	0.401***	0.404***	0.399***	0.400***
	(0.043)	(0.044)	(0.042)	(0.043)	(0.048)	(0.043)	(0.024)	(0.024)	(0.024)	(0.024)	(0.025)	(0.026)
$(S/K)_{t-1}$	0.350***	0.349***	0.281***	0.298***	0.319***	0.353***	0.402***	0.404***	0.410***	0.382***	0.384***	0.367***
	(0.092)	(0.094)	(0.102)	(0.103)	(0.096)	(0.088)	(0.048)	(0.048)	(0.049)	(0.050)	(0.050)	(0.057)
$(\pi/K)_{t-1}$	0.013	0.016	0.023	0.022	0.028	0.025	0.027**	0.026*	0.026*	0.024*	0.027*	0.028**
	(0.023)	(0.023)	(0.023)	(0.023)	(0.025)	(0.023)	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)	(0.014)
$(F/K)_{t-1}$	-0.053	-0.058	-0.066	-0.085*	-0.067	-0.073	-0.096***	-0.094***	-0.099***	-0.096***	-0.092***	-0.081***
	(0.045)	(0.047)	(0.049)	(0.048)	(0.045)	(0.045)	(0.022)	(0.022)	(0.022)	(0.023)	(0.023)	(0.025)
$(\pi_F/K)_{t-1}$	-0.035	-0.020	0.060	0.228**	0.531**	0.853*	0.002	-0.003	-0.010	0.097*	0.172*	0.801
	(0.036)	(0.042)	(0.059)	(0.100)	(0.252)	(0.496)	(0.020)	(0.023)	(0.031)	(0.049)	(0.096)	(0.607)
$(\pi_F/K)_{t-1} * D_n$		-0.053	-0.254*	-0.413***	-0.689**	-0.950*		0.173	0.063	-0.191*	-0.222*	-0.866
		(0.098)	(0.133)	(0.148)	(0.295)	(0.527)		(0.272)	(0.102)	(0.102)	(0.125)	(0.653)
$(TD/TA)_{t-1}$	-0.052*	-0.055*	-0.059**	-0.060**	-0.066***	-0.046	-0.055***	-0.055***	-0.053***	-0.055***	-0.053***	-0.057***
	(0.029)	(0.028)	(0.029)	(0.026)	(0.023)	(0.029)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Number of observations	5612	5612	5612	5612	5612	5612	22273	22273	22273	22273	22273	22273
Number of firms	664	664	664	664	664	664	3056	3056	3056	3056	3056	3056
Average number of observations	8.5	8.5	8.5	8.5	8.5	8.5	7.3	7.3	7.3	7.3	7.3	7.3
Number of instruments	31	33	33	33	33	33	31	33	33	33	33	33
p-value Hanses test	0.608	0.652	0.739	0.668	0.776	0.760	0.012	0.023	0.009	0.002	0.006	0.073
p-value A-B test (AR1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
p-value A-B test (AR2)	0.337	0.323	0.632	0.802	0.674	0.488	0.715	0.641	0.647	0.678	0.564	0.243
Time effects	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*Yes*
Wald test for time effects (p-value)	0.002	0.003	0.002	0.000	0.001	0.002	0.017	0.009	0.031	0.036	0.044	0.012
p-value $(\pi_F/K)+(\pi_F/K)_{t-1} * D_n$		0.351	0.051	0.012	0.012	0.056		0.518	0.520	0.123	0.195	0.221

Weighted regressions (w=1/total country obs.), two-step difference-GMM estimations. Specifications I and VII based on Equation (1), specifications II-VI and VIII to XII based on equation (2). Coefficients for the year dummies are not reported. Robust corrected standard error in parenthesis. * significant at 10%, ** significant ant 5%, *** significant at 1%.

Table 4.2. Estimation results, full sample, 1995-2015, INDEX2 index median split, dependent variable $(I/K)_t$

	INDEX2 below the median						*INDEX2 above the median*					
	(I) TOT	(II) TA10	(III) TA25	(IV) TA50	(V) TA75	(VI) TA90	(VII) TOT	(VIII) TA10	(IX) TA25	(X) TA50	(XI) TA75	(XII) TA90
$(I/K)_{t-1}$	0.336***	0.327***	0.334***	0.356***	0.350***	0.342***	0.424***	0.423***	0.437***	0.421***	0.387***	0.393***
	(0.043)	(0.042)	(0.042)	(0.041)	(0.044)	(0.043)	(0.026)	(0.026)	(0.026)	(0.027)	(0.035)	(0.043)
$(S/K)_{t-1}$	0.439***	0.443***	0.413***	0.386***	0.419***	0.416***	0.330***	0.338***	0.357***	0.346***	0.305***	0.312***
	(0.085)	(0.086)	(0.090)	(0.092)	(0.086)	v0.083)	(0.050)	(0.049)	(0.050)	(0.050)	(0.052)	(0.054)
$(\pi/K)_{t-1}$	-0.003	-0.000	0.001	0.007	0.001	-0.001	0.042***	0.040**	0.041***	0.038**	0.037***	0.049***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.015)	(0.016)	(0.015)	(0.015)	(0.014)	(0.017)
$(F/K)_{t-1}$	-0.072	-0.077*	-0.078*	-0.088**	-0.064	-0.066	-0.065**	-0.063**	-0.070***	-0.065**	-0.070***	-0.070**
	(0.045)	(0.046)	(0.046)	(0.044)	(0.042)	(0.041)	(0.027)	(0.027)	(0.027)	(0.027)	(0.026)	(0.032)
$(\pi_F/K)_{t-1}$	-0.001	0.005	0.044	0.234***	0.250**	0.396*	-0.039*	-0.048*	-0.035	0.060	0.405**	1.283
	(0.032)	(0.038)	(0.048)	(0.077)	(0.123)	(0.228)	(0.021)	(0.025)	(0.028)	(0.059)	(0.158)	(1.081)
$(\pi_F/K)_{t-1} * D_n$		-0.022	-0.131	-0.379***	-0.303**	-0.425*		0.295	0.006	-0.202*	-0.577***	-1.420
		(0.107)	(0.111)	(0.120)	(0.151)	(0.247)		(0.391)	(0.091)	(0.111)	(0.198)	(1.162)
$(TD/TA)_{t-1}$	-0.040	-0.043	-0.044	-0.049*	-0.049*	-0.040	-0.068***	-0.068***	-0.071***	-0.074***	-0.060***	-0.062***
	(0.028)	(0.027)	(0.028)	(0.026)	(0.026)	(0.028)	(0.014)	(0.014)	(0.013)	(0.013)	(0.013)	(0.014)
Number of observations	4782	4782	4782	4782	4782	4782	23103	23103	23103	23103	23103	23103
Number of firms	621	621	621	621	621	621	3099	3099	3099	3099	3099	3099
Average number of observations	7.7	7.7	7.7	7.7	7.7	7.7	7.5	7.5	7.5	7.5	7.5	7.5
Number of instruments	31	33	33	33	33	33	31	33	33	33	33	33
p-value Hanses test	0.409	0.462	0.503	0.412	0.344	0.493	0.229	0.208	0.051	0.026	0.060	0.199
p-value A-B test (AR1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
p-value A-B test (AR2)	0.650	0.634	0.562	0.335	0.445	0.448	0.208	0.223	0.095	0.121	0.141	0.225
Time effects	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Wald test for time effects (p-value)	0.001	0.002	0.002	0.000	0.004	0.002	0.002	0.001	0.012	0.026	0.014	0.002
p-value $(\pi_F/K) + (\pi_F/K)_{t-1} * D_n$		0.852	0.300	0.024	0.256	0.462		0.512	0.692	0.021	0.001	0.110

Weighted regressions (w=1/total country obs.), two-step difference-GMM estimations. Specifications I and VII based on Equation (1), specifications II-VI and VIII to XII based on equation (2). Coefficients for the year dummies are not reported. Robust corrected standard error in parenthesis. * significant at 10%, ** significant ant 5%, *** significant at 1%.

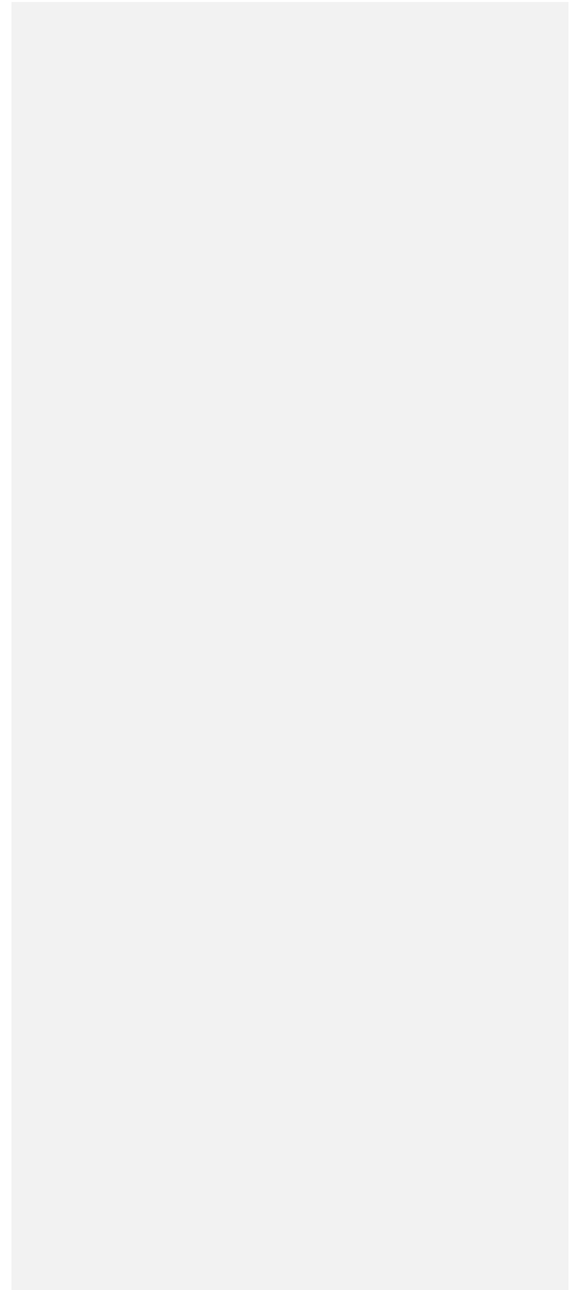


Table 5. Estimation results, full sample, 1995-2015, financial reform index median split, dependent variable $(I/K)_t$

	Financial reform index below the median						*Financial reform index above the median*					
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	(XI)	(XII)
	TOT	TA10	TA25	TA50	TA75	TA90	TOT	TA10	TA25	TA50	TA75	TA90
$(I/K)_{t-1}$	0.408***	0.412***	0.404***	0.397***	0.397***	0.399***	0.324***	0.326***	0.325***	0.344***	0.345***	0.328***
	(0.032)	(0.032)	(0.032)	(0.034)	(0.035)	(0.033)	(0.036)	(0.035)	(0.035)	(0.036)	(0.040)	(0.039)
$(S/K)_{t-1}$	0.457***	0.463***	0.415***	0.405***	0.413***	0.440***	0.345***	0.345***	0.364***	0.333***	0.345***	0.325***
	(0.068)	(0.081)	(0.076)	(0.077)	(0.073)	(0.068)	(0.069)	(0.069)	(0.068)	(0.067)	(0.069)	(0.069)
$(\pi/K)_{t-1}$	-0.008	-0.008	0.004	0.005	0.006	-0.005	0.057***	0.058***	0.058***	0.054***	0. 051***	0.054***
	(0.020)	(0.022)	(0.019)	(0.020)	(0.020)	(0.020)	(0.014)	(0.014)	(0.014)	(0.015)	(0.015)	(0.015)
$(F/K)_{t-1}$	-0.018	-0.025	-0.017	-0.014	-0.018	-0.024	-0.129***	-0.128***	-0.129***	-0.159***	-0.120***	-0.111***
	(0.034)	(0.034)	(0.033)	(0.032)	(0.033)	(0.033)	(0.036)	(0.036)	(0.036)	(0.038)	(0.037)	(0.038)
$(\pi_F/K)_{t-1}$	-0.018	-0.026	0.065	0.160**	0.224**	0.316*	-0.062**	-0.067*	-0.067*	0.192	0.238	0.392
	(0.027)	(0.037)	(0.059)	(0.075)	(0.103)	(0.184)	(0.028)	(0.036)	(0.038)	(0.191)	(0.237)	(0.585)
$(\pi_F/K)_{t-1} * D_n$		0.316	-0.344	-0.374**	-0.317**	-0.361*		0.013	0.026	-0.365***	-0.351	-0.478
		(0.506)	(0.231)	(0.154)	(0.130)	(0.193)		(0.074)	(0.085)	(0.129)	(0.272)	(0.625)
$(TD/TA)_{t-1}$	-0.109***	-0.106***	-0.130***	-0.126***	-0.115***	-0.106***	-0.027	-0.028	-0.029	-0.028	-0.026	-0.027
	(0.018)	(0.018)	(0.024)	(0.022)	(0.019)	(0.019)	(0.024)	(0.024)	(0.024)	(0.019)	(0.016)	(0.025)
Number of observations	15029	15029	15029	15029	15029	15029	12856	12856	12856	12856	12856	12856
Number of firms	2054	2054	2054	2054	2054	2054	1666	1666	1666	1666	1666	1666
Average number of observations	7.3	7.3	7.3	7.3	7.3	7.3	7.7	7.7	7.7	7.7	7.7	7.7
Number of instruments	31	33	33	33	33	33	31	33	33	33	33	33
p-value Hanses test	0.324	0.426	0.569	0.268	0.138	0.198	0.199	0.276	0.233	0.182	0.308	0.140
p-value A-B test (AR1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
p-value A-B test (AR2)	0.744	0.807	0.663	0.995	0.870	0.821	0.591	0.601	0.530	0.840	0.735	0.755
Time effects	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*Yes*
Wald test for time effects (p-value)	0.002	0.000	0.009	0.000	0.003	0.002	0.001	0.000	0.005	0.006	0.002	0.000
p-value $(\pi_F/K) + (\pi_F/K)_{t-1} * D_n$		0.550	0.130	0.020	0.028	0.124		0.312	0.517	0.000	0.025	0.093

Weighted regressions (w=1/total country obs.), two-step difference-GMM estimations. Specifications I and VII based on Equation (1), specifications II-VI and VIII to XII based on equation (2). Coefficients for the year dummies are not reported. Robust corrected standard error in parenthesis. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table 6. Estimation results, full sample, 1995-2015, Total financial liabilities to GDP median split, dependent variable $(I/K)_t$

	Financial liabilities to GDP above the median						*Financial liabilities to GDP above the median*					
	(I) TOT	(II) TA10	(III) TA25	(IV) TA50	(V) TA75	(VI) TA90	(VII) TOT	(VIII) TA10	(IX) TA25	(X) TA50	(XI) TA75	(XII) TA90
$(I/K)_{t-1}$	0.397***	0.400***	0.389***	0.386***	0.393***	0.393***	0.346***	0.350***	0.347***	0.360***	0.354***	0.348***
	(0.032)	(0.033)	(0.031)	(0.034)	(0.036)	(0.033)	(0.036)	(0.036)	(0.036)	(0.035)	(0.037)	(0.038)
$(S/K)_{t-1}$	0.415***	0.429***	0.365***	0.356***	0.372***	0.406***	0.362***	0.365***	0.388***	0.355***	0.358***	0.346***
	(0.066)	(0.083)	(0.074)	(0.076)	(0.072)	(0.067)	(0.072)	(0.072)	(0.071)	(0.070)	(0.071)	(0.071)
$(\pi/K)_{t-1}$	0.003	0.002	0.014	0.016	0.018	0.005	0.049***	0.050***	0.050***	0.047***	0.044***	0.047***
	(0.019)	(0.023)	(0.017)	(0.018)	(0.019)	(0.018)	(0.016)	(0.016)	(0.016)	(0.017)	(0.016)	(0.017)
$(F/K)_{t-1}$	-0.040	-0.051	-0.040	-0.038	-0.038	-0.044	-0.100***	-0.099***	-0.101***	-0.124***	-0.091**	-0.081**
	(0.036)	(0.037)	(0.035)	(0.032)	(0.034)	(0.035)	(0.037)	(0.037)	(0.037)	(0.038)	(0.036)	(0.038)
$(\pi_F/K)_{t-1}$	0.004	-0.010	0.107*	0.216**	0.272**	0.288	-0.073**	-0.084**	-0.078**	0.139*	0.179	0.458
	(0.025)	(0.045)	(0.065)	(0.085)	(0.121)	(0.197)	(0.029)	(0.037)	(0.037)	(0.077)	(0.159)	(0.585)
$(\pi_F/K)_{t-1} * D_n$		0.412	-0.405	-0.420**	-0.348**	-0.309		0.038	0.030	-0.305***	-0.295	-0.566
		(0.776)	(0.255)	(0.164)	(0.153)	(0.209)		(0.079)	(0.080)	(0.112)	(0.184)	(0.621)
$(TD/TA)_{t-1}$	-0.084***	-0.082***	-0.106***	-0.099***	-0.091***	-0.080***	-0.042	-0.043	-0.043	-0.044**	-0.042**	-0.041
	(0.017)	(0.017)	(0.022)	(0.020)	(0.018)	(0.017)	(0.027)	(0.027)	(0.027)	(0.022)	(0.019)	(0.028)
Number of observations	18860	18860	18860	18860	18860	18860	9025	9025	9025	9025	9025	9025
Number of firms	2668	2668	2668	2668	2668	2668	1052	1052	1052	1052	1052	1052
Average number of observations	7.1	7.1	7.1	7.1	7.1	7.1	8.6	8.6	8.6	8.6	8.6	8.6
Number of instruments	31	33	33	33	33	33	31	33	33	33	33	33
p-value Hanses test	0.408	0.507	0.715	0.547	0.212	0.259	0.239	0.318	0.246	0.203	0.349	0.266
p-value A-B test (AR1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
p-value A-B test (AR2)	0.495	0.579	0.412	0.751	0.582	0.535	0.929	0.961	0.853	0.892	0.909	0.862
Time effects	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Wald test for time effects (p-value)	0.000	0.002	0.001	0.000	0.003	0.002	0.002	0.001	0.002	0.004	0.005	0.001
p-value $(\pi_F/K) + (\pi_F/K)_{t-1} * D_n$		0.588	0.135	0.024	0.012	0.487		0.445	0.430	0.002	0.123	0.033

Weighted regressions (w=1/total country obs.), two-step difference-GMM estimations. Specifications I and VII based on Equation (1), specifications II-VI and VIII to XII based on equation (2). Coefficients for the year dummies are not reported. Robust corrected standard error in parenthesis. * significant at 10%, ** significant at 5%, *** significant at 1%.

	Capital account openness below the median						*Capital account openness above the median*					
	(I) TOT	(II) TA10	(III) TA25	(IV) TA50	(V) TA75	(VI) TA90	(VII) TOT	(VIII) TA10	(IX) TA25	(X) TA50	(XI) TA75	(I) TOT
$(I/K)_{t-1}$	0.365***	0.354***	0.359***	0.367***	0.367***	0.364***	0.400***	0.399***	0.413***	0.397***	0.384***	0.397***
	(0.038)	(0.037)	(0.037)	(0.034)	(0.037)	(0.037)	(0.033)	(0.033)	(0.034)	(0.038)	(0.040)	(0.035)
$(S/K)_{t-1}$	0.464***	0.469***	0.457***	0.406***	0.444***	0.431***	0.330***	0.341***	0.343***	0.346***	0.294***	0.337***
	(0.068)	(0.068)	(0.073)	(0.073)	(0.069)	(0.067)	(0.067)	(0.066)	(0.068)	(0.074)	(0.069)	(0.066)
$(\pi/K)_{t-1}$	-0.001	0.004	0.000	0.008	0.001	0.001	0.041**	0.040**	0.042**	0.041**	0.041**	0.046***
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.017)	(0.017)	(0.017)	(0.018)	(0.017)	(0.017)
$(F/K)_{t-1}$	-0.058	-0.068	-0.062	-0.061	-0.053	-0.059	-0.062*	-0.056	-0.077**	-0.090***	-0.066*	-0.071**
	(0.043)	(0.043)	(0.043)	(0.043)	(0.040)	(0.037)	(0.035)	(0.035)	(0.035)	(0.035)	(0.037)	(0.036)
$(\pi_F/K)_{t-1}$	-0.013	-0.007	-0.003	0.175**	0.178	0.615*	-0.056**	-0.080***	-0.032	0.161*	0. 424***	0.640
	(0.030)	(0.035)	(0.048)	(0.077)	(0.130)	(0.320)	(0.026)	(0.031)	(0.036)	(0.090)	(0.163)	(0.552)
$(\pi_F/K)_{t-1} * D_n$		-0.023	-0.028	-0.293***	-0.228	-0.658**		0.453	-0.082	-0.441**	-0.622***	-0.764
		(0.117)	(0.100)	(0.108)	(0.151)	(0.335)		(0.295)	(0.172)	(0.187)	(0.210)	(0.605)
$(TD/TA)_{t-1}$	-0.048*	-0.054*	-0.051*	-0.060**	-0.055**	-0.048*	-0.068***	-0.067***	-0.072***	-0.073***	-0.063***	-0.066***
	(0.029)	(0.028)	(0.028)	(0.026)	(0.025)	(0.029)	(0.019)	(0.019)	(0.019)	(0.017)	(0.017)	(0.018)
Number of observations	17912	17912	17912	17912	17912	17912	9973	9973	9973	9973	9973	9973
Number of firms	2576	2576	2576	2576	2576	2576	1144	1144	1144	1144	1144	1144
Average number of observations	7.0	7.0	7.0	7.0	7.0	7.0	8.7	8.7	8.7	8.7	8.7	8.7
Number of instruments	31	33	33	33	33	33	31	33	33	33	33	33
p-value Hanses test	0.139	0.138	0.182	0.174	0.160	0.191	0.444	0.698	0.296	0.211	0.273	0.604
p-value A-B test (AR1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
p-value A-B test (AR2)	0.459	0.421	0.422	0.249	0.262	0.208	0.141	0.168	0.121	0.242	0.162	0.175
Time effects	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Wald test for time effects (p-value)	0.000	0.001	0.001	0.000	0.002	0.002	0.001	0.001	0.002	0.002	0.005	0.001
p-value $(\pi_F/K) + (\pi_F/K)_{t-1} * D_n$		0.773	0.656	0.023	0.205	0.209		0.184	0.444	0.010	0.001	0.041

Table 7. Estimation results, full sample, 1995-2015, Capital account openness index median split, dependent variable $(I/K)_t$

Weighted regressions (w=1/total country obs.), two-step difference-GMM estimations. Specifications I and VII based on Equation (1), specifications II-VI and VIII to XII based on equation (2). Coefficients for the year dummies are not reported. Robust corrected standard error in parenthesis. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table 8. Estimation results, full sample, 1995-2015, Global Value Chain participation index, dependent variable $(I/K)_t$

	GVC participation index below the median						*GVC participation index above the median*					
	(I) TOT	(II) TA10	(III) TA25	(IV) TA50	(V) TA75	(VI) TA90	(VII) TOT	(VIII) TA10	(IX) TA25	(X) TA50	(XI) TA75	(XII) TA90
$(I/K)_{t-1}$	0.386***	0.383***	0.388***	0.393***	0.396***	0.382***	0.358***	0.362***	0.371***	0.369***	0.349***	0.360***
	(0.037)	(0.037)	(0.038)	(0.037)	(0.039)	(0.037)	(0.030)	(0.030)	(0.031)	(0.031)	(0.030)	(0.033)
$(S/K)_{t-1}$	0.518***	0.506***	0.473***	0.448***	0.467***	0.495***	0.298***	0.310***	0.329***	0.319***	0.278***	0.301***
	(0.082)	(0.085)	(0.096)	(0.095)	(0.088)	(0.081)	(0.060)	(0.060)	(0.059)	(0.060)	(0.060)	(0.070)
$(\pi/K)_{t-1}$	0.007	0.011	0.016	0.020	0.023	0.014	0.037***	0.037***	0.034**	0.029*	0.034**	0.036**
	(0.020)	(0.021)	(0.020)	(0.019)	(0.020)	(0.019)	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)	(0.015
$(F/K)_{t-1}$	-0.048	-0.054	-0.056	-0.087*	-0.059	-0.065	-0.083***	-0.084***	-0.090***	-0.088***	-0.077***	-0.080**
	(0.050)	(0.050)	(0.051)	(0.050)	(0.047)	(0.046)	(0.024)	(0.023)	(0.024)	(0.024)	(0.024)	(0.037)
$(\pi_F/K)_{t-1}$	-0.004	0.010	0.053	0.231***	0.337***	0.619**	-0.049**	-0.059**	-0.037	0.120	0.285	0.094
	0.031)	(0.035)	(0.052)	(0.081)	(0.125)	(0.265)	(0.023)	(0.026)	(0.032)	(0.062)	(0.201)	(1.931)
$(\pi_F/K)_{t-1} * D_n$		-0.086	-0.176	-0.383***	-0.426***	-0.663**		0.135	-0.057	-0.307***	-0.407*	-0.152
		(0.146)	(0.147)	(0.128)	(0.153)	(0.284)		(0.111)	(0.100)	(0.108)	(0.242)	(0.153)
$(TD/TA)_{t-1}$	-0.077**	-0.080**	-0.085***	-0.089***	-0.087***	-0.071**	-0.045***	-0.045***	-0.049***	-0.043***	-0.041***	-0.044***
	(0.031)	(0.031)	(0.032)	(0.028)	(0.026)	(0.032)	(0.015)	(0.015)	(0.015)	(0.014)	0.015	0.015
Number of observations	12143	12143	12143	12143	12143	12143	15742	15742	15742	15742	15742	15742
Number of firms	1726	1726	1726	1726	1726	1726	1994	1994	1994	1994	1994	1994
Average number of observations	7.0	7.0	7.0	7.0	7.0	7.0	7.9	7.9	7.9	7.9	7.9	7.9
Number of instruments	31	33	33	33	33	33	31	33	33	33	33	33
p-value Hanses test	0.432	0.470	0.472	0.513	0.517	0.403	0.308	0.408	0.050	0.020	0.160	0.253
p-value A-B test (AR1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
p-value A-B test (AR2)	0.920	0.885	0.897	0.611	0.786	0.990	0.417	0.421	0.364	0.499	0.593	0.417
Time effects	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Wald test for time effects (p-value)	0.001	0.002	0.001	0.000	0.001	0.003	0.003	0.006	0.012	0.013	0.004	0.002
p-value $(\pi_F/K) + (\pi_F/K)_{t-1} * D_n$		0.565	0.268	0.021	0.044	0.245		0.449	0.255	0.001	0.032	0.639

Weighted regressions (w=1/total country obs.), two-step difference-GMM estimations. Specifications I and VII based on Equation (1), specifications II-VI and VIII to XII based on equation (2). Coefficients for the year dummies are not reported. Robust corrected standard error in parenthesis. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table 9. Economic significance, 1995-2015.

	Estimated coefficients				*Long-run coefficients*			*Actual change (Δlog) 1995-2015*			*Economic significance*		
	I/K	π_F/K	F/K	TD/TA	π_F/K	F/K	TD/TA	π_F/K	F/K	TD/TA	π_F/K	F/K	TD/TA
LOWFDEV	0.295	0.000	0.000	0.000	0.000	0.000	0.000	1.366	0.931	1.920	0.000	0.000	0.000
HIGHFDEV	0.440	0.000	-0.067	-0.070	0.000	-0.120	-0.125	1.306	2.020	0.248	0.000	-0.242	-0.031
LOWIND1	0.332	0.000	0.000	-0.052	0.000	0.000	-0.078	1.248	1.843	0.180	0.000	0.000	-0.014
HIGHIND1	0.403	0.000	-0.096	-0.055	0.000	-0.161	-0.092	1.436	2.562	1.448	0.000	-0.412	-0.133
LOWIND2	0.336	0.000	0.000	0.000	0.000	0.000	0.000	1.444	2.722	2.021	0.000	0.000	0.000
HIGHIND2	0.424	-0.039	-0.068	-0.068	-0.068	-0.118	-0.118	0.808	1.981	0.160	-0.055	-0.234	-0.019
LOWFREF	0.408	0.000	0.000	-0.109	0.000	0.000	-0.184	1.573	2.732	1.448	0.000	0.000	-0.267
HIGHFREF	0.324	-0.062	-0.129	0.000	-0.092	-0.191	0.000	1.103	1.964	0.426	-0.101	-0.375	0.000
LOWFLA	0.397	0.000	0.000	-0.084	0.000	0.000	-0.139	1.344	2.579	1.467	0.000	0.000	-0.204
HIGHFLA	0.346	-0.073	-0.100	0.000	-0.112	-0.153	0.000	1.028	1.841	0.292	-0.115	-0.282	0.000
LOWKAOP	0.365	0.000	0.000	-0.048	0.000	0.000	-0.076	1.709	2.998	1.681	0.000	0.000	-0.127
HIGHKAOP	0.400	-0.056	-0.062	-0.068	-0.093	-0.103	-0.113	0.903	1.760	0.195	-0.084	-0.182	-0.022
LOWGVC	0.386	0.000	0.000	-0.077	0.000	0.000	-0.125	1.722	3.081	1.580	0.000	0.000	-0.198
HIGHGVC	0.358	-0.049	-0.083	-0.045	-0.076	-0.129	-0.070	1.108	1.723	0.240	-0.085	-0.223	-0.017

Appendix

Table 1A. Variable definitions and codes

Symbol	*Variable*	*Definition*	*Worldscope Code*
I	Investment	Addition to fixed assets	WC04601
K	Capital stock	Net fixed capital stock	WC02501
S	Sales	Net sales	WC01001
π	Operating profit	Operating income	WC01250
F	Financial Payments	Interest paid on debt + cash dividends paid	WC01251 + WC04551
π_F	Financial Incomes	Non-operating profit from interest and dividends	WC01266 + WC01268
TD	Total Debt	Sum of long and short-term debt	WC03255
TA	Total Assets	Sum of total current assets and long-term receivables	WC02999
FA	Financial assets	Cash, other investment, short-term investment, other current assets	WC02003 + WC02250 + WC02008 + WC02149

Table 2A. Sample composition, 1995-2015

Country	*Code*	*Number of observations*	*Percent of total observations*	*Number of firms*
Argentina	AR	559	1.12	37
Brazil	BR	1,767	3.54	124
Chile	CL	1,308	2.62	69
China	CH	2,441	4.89	258
Colombia	CB	190	0.38	16
Egypt	EY	294	0.59	21
India	IN	13,046	26.14	1033
Indonesia	ID	4,676	9.37	278
Malaysia	MY	5,036	10.09	352
Mexico	MX	1,432	2.87	81
Nigeria	NG	145	0.29	14
Pakistan	PK	868	1.74	64
Peru	PE	629	1.26	48
Philippines	PH	250	0.5	17
Russian Federation	RS	878	1.76	74
Singapore	SG	1,153	2.31	66
South Africa	SA	3,164	6.34	180
South Korea	KO	8,459	16.95	728
Sri Lanka	CY	998	2	78
Thailand	TH	1,522	3.05	97
Turkey	TK	1,098	2.2	85
Total		*49,908*	*100%*	*3,720*

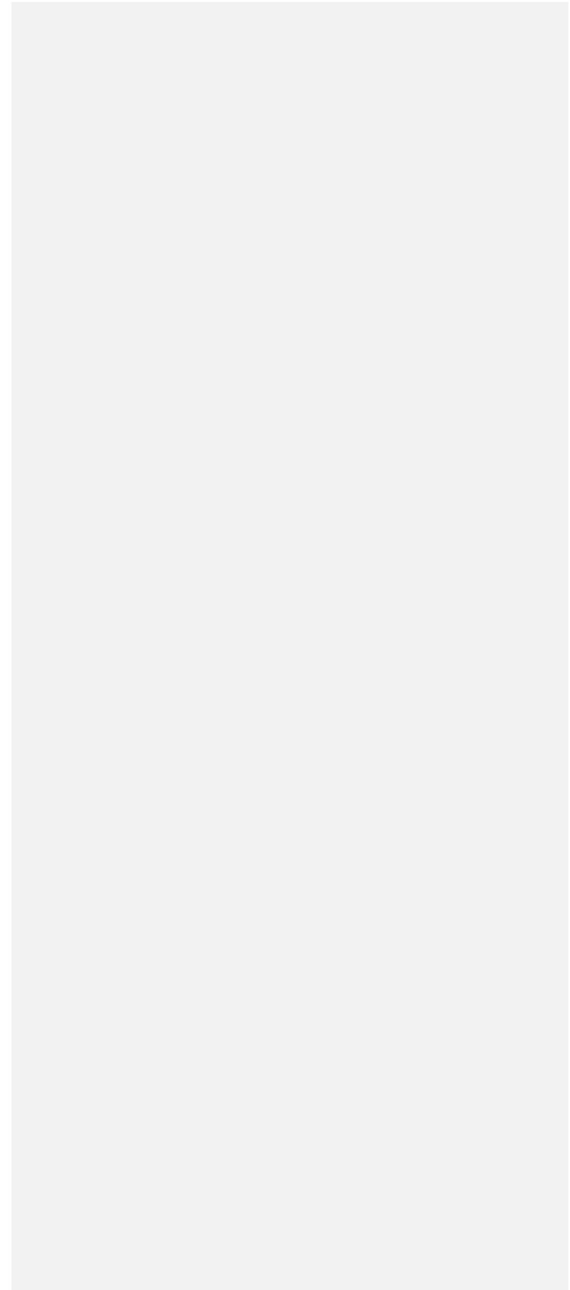


Table 3A. Descriptive statistics, full sample, 1995-2015

Variable		*Mean*	*Std. Dev.*	*Min*	*Max*	*Observations*
I/K	*overall*	0.191	0.162	0.000	1.294	N = 49449
	between		0.107	0.003	0.827	n = 3720
	within		0.129	-0.355	1.089	T-bar = 13.29
S/K	*overall*	4.523	7.397	0.031	133.089	N = 49527
	between		6.443	0.088	93.931	n = 3720
	within		4.175	-53.231	90.578	T-bar = 13.31
π/K	*overall*	0.306	0.708	-5.073	21.303	N = 49543
	between		0.551	-1.067	13.174	n = 3720
	within		0.495	-10.072	13.638	T-bar = 13.31
F/K	*overall*	0.179	0.409	0.000	28.793	N = 49651
	between		0.279	0.004	5.308	n = 3720
	within		0.312	-4.568	26.075	T-bar = 13.35
π_F/K	*overall*	0.038	0.117	0.000	4.549	N = 49697
	between		0.085	0.000	2.718	n = 3720
	within		0.086	-1.339	3.086	T-bar = 13.36
TD/TA	*overall*	1.086	3.061	0.000	270.096	N = 49691
	between		2.633	0.004	108.912	n = 3720
	within		1.987	-107.258	162.271	T-bar = 13.36

Table 4A. Country-specific variables definition and source

Description	*Code*	*Source*
Total liquid liabilities (% of GDP)	gfdd.di.05	GFDD 2017 (World Bank)
Domestic credit to private sector (% of GDP)	gfdd.di.14	GFDD 2017 (World Bank)
Stock market capitalization to GDP (%)	gfdd.dm.01	GFDD 2017 (World Bank)
Stock market total value traded to GDP (%)	gfdd.dm.02	GFDD 2017 (World Bank)
Stock market turnover ratio (%)	gfdd.em.01	GFDD 2017 (World Bank)
Stock market return (%, y-o-y)	gfdd.om.02	GFDD 2017 (World Bank)
INDEX1	Standardized average of gfdd.di.05 + gfdd.di.14	Authors' computation
INDEX2	Standardized average of gfdd.dm.01, gfdd.dm.02, gfdd.em.01, gfdd.om.02	Authors' computation
Financial development index	Standardized average of INDEX1 and INDEX2	Authors' computation
Financial Reform Index	FINREF	IMF
Chinn-Ito Index	KAOPEN	Chinn and Ito (2008)
Total financial liabilities (% of GDP)	FINLA	Lane and Milesi-Ferretti database
Global Value Chain participation index	GVC	UNCTAD-Eora

Endnotes

[i] Table 1A in Appendix provide the descriptions and codes for the variables used in our analysis.

[ii] One difference of the specification in Tori and Onaran (2018; 2020) with respect to Orhangazi (2008) is that financial incomes (π_F) are the sum of dividends and interests received by the *i* company in the former, whilst Orhangazi uses 'equity in earnings' as a proxy for this measure, due to data limitations.

[iii] The inclusion of this variable would have caused a considerable reduction in our sample, in terms of both the number of firms and time period. In addition to this technical reason, it is worth stressing that the hypothetical increase in the share price as a consequence of buybacks depends on a) the particular capital structure of a company, and b) on the related realized gains on the stock being sold by shareholder.

[iv] Interest and dividends do not exhaust the spectrum of non-operating financial incomes of NFCs. In fact, Krippner (2005) shows how capital gains account for a considerable part of NFCs financial profits. However, as recognised by Orhangazi (2008) with respect to Compustat database, also in Worldscope data on NFCs' data on capital gains are not available.

[v] Although the literature does not offer strong arguments about a potential different effect of financial payments on investment by size, this could be another interesting aspect to be investigated. We performed an estimation with such an interaction. The results indicate that the effect is negative and significant for all the companies in the bottom 90% of the size distribution (about -0.1, i.e. a difference of 0.03 from the average estimate). Also, it has to be noted that this interacted effect is borderline significant (t-value is 1.93). We conclude that this split reduces the statistical significance of the effect without providing useful information. Therefore, we opted for not exploring this further. This is opposite to what happens for financial incomes, for which the size split increases statistical significance of the effect. Results are available upon request.

[vi] The primary Standard Industry Classification (SIC) code is commonly used in the literature to identify companies' main sector of operation. Worldscope provides alternative codes for the identification of the main field of operation. We checked the consistency between the primary SIC code, the primary

Industrial Classification Benchmark (ICB) code, and the Thomson Reuters Business Classification (TRBC) code. We excluded companies that were classified as non-financial according to SIC, but as financial according to either ICB or TRBC.

[vii] For a complete list of the countries in the Worldscope database, please see the Worldscope Data definition Guide.

[viii] Although the exclusion of these firms could introduce a bias into our sample, this is a standard procedure in similar analysis (see Orhangazi, 2008; Tori and Onaran, 2018; 2020) and is consistent with the one employed in other key publications using the Worldscope database (Love, 2003; Bloom *et al*., 2004). After excluding these companies, we lose only about 8% of the total observations (less than 4% of the final number of companies). To test for robustness, we estimated our baseline equation for a sample including firms with negative mean operating income for the period. While the sign, magnitude, and standard errors of the estimated coefficients are quite close to the ones from our preferred version, the p-value for the Hansen test is lower. We conclude that excluding these outlier firms increase the robustness of our analysis without reducing precision or increasing bias in the estimates.

[ix] The economic importance of the corporate sector in this set of countries might be questioned. According to World Bank data (GFDD) the countries in our sample have an average of 1 listed company for every 100 thousand people in the period under analysis. The median value of the stock market capitalization is a considerable 37% of GDP. Almost 15% of GDP is the value of trading, while stock market turnover counts for 32% of GDP. Overall, these values indicate that the corporate sector is a fundamental part of the economic system of the countries considered.

[x] Presenting aggregated figures from an unbalanced dataset could provide an unclear picture about the trends. These figures indicate trends and cannot provide a full picture of the microeconomic tendencies. For this, we try to explore the richness of the heterogeneity in our sample with the empirical strategy proposed in the paper. The trends in the components incorporate a) heterogeneity and b) assume that new entrants might have different ratios than the previous period's average firm. However, this is an issue in all analysis based on unbalanced panel data, here mitigated also by the inclusion in the sample

of companies with at least 5 years of consecutive observations for the dependent variable. We checked for robustness by comparing a) the full sample vs. a reduced sample that excludes the top four countries in terms of total available observations in our sample (i.e. India, South Korea, Malaysia, and Indonesia); b) the full sample vs. a sample of only BRICS countries (Brazil, Russia, India, China, Russia). Both these exercises confirm that trends are not driven by data availability or by large countries (figures are available on request). Tori and Onaran (2017) and UNCTAD (2016, Chapter V) show trends close to those presented here.

[xi] We opted for excluding years after 2007 in the computation of the macroeconomic variables for two main reasons. First, the effects of the financial crisis were evident a few years after starting in the USA, both in Europe and the DEEs. For the latter in particular, the post-crisis period has been characterized by highly volatile exchange rates, as well as the consequences of monetary policy tapering and its effects on the credit system even after the recession was over. Therefore, the macroeconomic effects of the crisis in the DEEs are not straightforward and mainly related to feedback on capital flows and financial markets, which is safe to assume lasted at least until 2015. The same assumption has been used by Tori and Onaran (2020) for the macroeconomic measure of financial development. Second, in this study we are interested in the long-term structural differences between countries, hence we try to abstain from cyclical macroeconomic fluctuations in the post-crisis period, which can result in an inaccurate interpretation of our results.

[xii] See table 4A in the Appendix for definitions, codes, and sources of the macroeconomic variables.

[xiii] Hansen test takes the orthogonality between instruments and regressions' residuals as the indicator of consistency between estimated and sample moments. We tested and confirmed the presence of heteroskedasticity in our sample by using the White/Koenker and the Breusch-Pagan/Godfrey/Cook-Weisberg tests. Hansen's-J test is preferred to the Sargan test in the presence of heteroskedasticity (Roodman, 2009). However, the Hansen test (as the Sargan test) is sensitive to the total number of instruments. Therefore, we use only the first and second lags of our variables as instruments.

[xiv] The log-log form of our estimation allows for an intuitive interpretation of the results. The estimates can be interpreted as partial elasticities. For example, we can say that, *ceteris paribus*, for the larger companies in the sample a 10% increase in financial incomes will increase investment by 4.3%. In the case of smaller companies, a similar increase will reduce investment between 1.6% to 7.7% depending on the percentiles considered. This interpretation applies to all the other partial elasticities presented in this section.

[xv] We also tested the relationship between the levels and growth rates of GDP per capita and the effects of financialization on NFCs' investment. A strong correspondence between economic growth or a 'convergence' between DEEs and developed countries, and more pronounced effects of financialization on NFCs' investment in larger or faster-growing economies is not consistently detected. However, the results suggest that investment in larger NFCs in relatively fast-growing countries are benefiting from financial incomes. Also, financial payments had a negative and significant effect on NFCs' investment, and we do find that differences in GDP per capita or growth rates drive variations in this effect. Results are available on request.

[xvi] A more appropriate consideration of the magnitudes would require a country specific computation of the economic effects, which cannot be done due to data limitations. Taking the average of both long-term coefficients and actual changes for the subsamples is a second-best option and should be interpreted with caution. Providing the economic effect for different size cohorts could be a solution, however such a comparison would require quite strong additional assumption on i) the composition of the aggregate panels in terms of different sizes and ii) the distributions of size within countries. Comparing economic significance on different size cohorts between panels, given varying statistical significance, would also be inconclusive in this sense.

[xvii] The light grey colour indicates that the respective country is above the median for a particular indicator. All the institutional variables used in our estimations are averaged for the period 1995-2007, to avoid considering turbulent years around the great financial crisis.